

Timber Technology – Seasoning, shrinkage & defects.

Freshly cut (green) timber contains large amounts of _____ and must be dried (seasoned) to a _____.

During the seasoning process _____ occurs and sometimes this produces defects within the timber. Defects also occur _____ and while some of these are desirable, others are not.

Seasoning

Seasoning is the reduction of moisture content of timber to that of the-surrounding air -
- Sydney area approx. 12.3%.

Methods of Seasoning

- **Air** - natural circulation of air around & through timber stacks. --- Time - 3-9 months, sometimes years.
- **Kiln** - forced drying of timber stacks in large containers called kilns - Time 1-3 weeks.
- **Combination of Air & Kiln** - combines advantages of both air and kiln.
- **Solar kilns** – rely on solar energy to aid the drying process - Time 1-3 weeks

For more information on seasoning of timber go to *Drying timber in Australia*:

<http://sres.anu.edu.au/associated/fpt/drying/drying.html>

Seasoned timber has many advantages over unseasoned timber, such as:
improved strength and hardness

Its disadvantages include:

Testing for Moisture Content

- _____ - a more scientific and accurate method of testing M.C. - needs laboratory type equipment.

_____ - a practical and portable method used.

Widely in industry and is based on the resistance to the passage of electricity between 2 needles driven into the timber.

Shrinkage of Timber

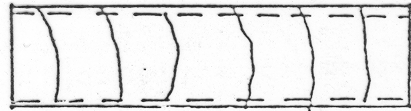
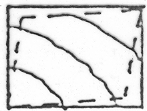
The drying out of green timber occurs in stages.

1. Removal of tree water _____.
2. Removal of excess moisture _____

Shrinkage only takes place during _____ and mainly occurs in the direction of the growth rings.



BACK CUT



QUARTER CUT

Note: Allowance should be made for movement which will occur.

Defects in Timber

As previously stated, some defects occur during seasoning and some occur naturally.

Some defects only affects appearance while others may affect structural strength (as well as appearance).

Seasoning Defects

- Case hardening - _____

- Collapse - _____

** - usually due to poor seasoning and surface checking techniques.

Natural Defects

- Knots - in some cases may be desirable.
- Pipe - hollow centre in tree.
- Gum vein - pockets of-gum.

Burls - _____

Shakes - heart, ring or cup, star - _____

- Felling or traverse shakes are caused by bad felling techniques or lightning strike, wind.
- Fungus
 - Decay - partial or total disintegration of fibre.
 - Wet rot - too wet conditions.
 - Dry rot - dry conditions.

Insects

- Borers
- Termites/white ants
- Beetles

attack living trees & untreated wood.

Note:

Careful selection of timber may avoid dangerous structural conditions or poor appearance in joinery & fitments.